AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all previous versions and listings of claims in this application.

1. (Previously Presented) A method of forming a structure that includes a relaxed or pseudo-relaxed layer on a substrate comprising:

growing an elastically stressed layer of semiconductor material on a donor substrate;

forming a glassy layer of a viscous material on the stressed layer;

removing a portion of the donor substrate to form a structure that includes the glassy layer, the stressed layer and a surface layer;

heat treating the structure at a temperature of at least a viscosity temperature of the glassy layer to relax the stressed layer; and

using a controlled treatment that includes heat treating to a second viscosity temperature to transform at least a portion of the surface layer into a second glassy layer.

2. (Withdrawn) The method of claim 1 wherein the glassy layer is also formed on a receiving substrate and the structure includes the receiving substrate bonded to the glassy layer.

3. (Withdrawn) The method of claim 1 wherein the glassy layer is formed on the receiving substrate prior to bonding with the stressed layer.

4. (Cancelled)

5. (Previously Presented) The method of claim 1, wherein the heat treating occurs during or after the formation of the second glassy layer.

6. (Previously Presented) The method of claim 1, which further comprises removing the second glassy layer.

7. (Original) The method of claim 1 which further comprises inducing crystal growth on the structure using a semiconductor material.

8. (Previously Presented) The method of claim 2, wherein the glassy layer is formed on the receiving substrate, and wherein, before bonding, a thin layer is formed on the stressed layer having a thickness that is less than that of the stressed layer.

9. (Original) The method of claim 1 wherein the glassy layer comprises a semiconductor material layer that is grown on the stressed layer and which further comprises completing a controlled treatment that transforms at least a portion of the semiconductor material layer into a viscous material at a viscosity temperature.

10. (Previously Presented) The method of claim 2, which further comprises forming a bonding layer on the receiving substrate prior to forming the glassy layer thereon.

11. (Original) The method of claim 10 wherein the bonding layer is an SiO_2 material.

12. (Original) The method of claim 1 which further comprises forming a weakened zone in the donor substrate for removal by detachment wherein the weakened zone is formed at a depth value that is close to the thickness of the surface layer.

13. (Original) The method of claim 12 wherein the weakened zone is formed by implanting atomic species into the donor substrate before the bonding step.

14. (Original) The method of claim 1 wherein the donor substrate is formed by forming a porous layer on a crystalline backing substrate, and growing a crystal layer on the porous layer, wherein the porous layer forms a weakened area in the donor substrate.

15. (Original) The method of claim 1 wherein the removing step comprises selective chemical etching.

16. (Original) The method of claim 1 wherein the glassy layer comprises an electrically insulating material.

17. (Original) The method of claim 18 wherein the glassy layer is SiO_2.

18. (Original) The method of claim 1 wherein the donor substrate is Si, and the stressed layer is $Si_{1-x}Ge_x$.

19. (Original) The method of claim 1 wherein the glassy layer is a material layer grown on the stressed layer, and which further comprises completing a controlled thermal oxidization treatment for transforming at least a portion of the Si material layer into SiO_2 to form a SiO_2 glassy layer.

20. (Previously Presented) The method of claim 2, wherein forming the second glassy layer comprises using a controlled thermal oxidization treatment for transforming at least a portion of Si in the surface layer into SiO_2 to form a second SiO_2 glassy layer.

21. (Original) The method of claim 20 which further comprises, after the heat treating step, using a chemical treatment based on hydrofluoric acid to remove the second glassy layer.

22. (Original) The method of claim 6 which further comprises growing a crystal layer on the structure using a Si material.

23. (Original) The method of claim 1 wherein the glassy layer is electrically insulating and the structure is a semiconductor-on-insulator structure.

24. (Original) The method of claim 1 further comprising preparing components from at least one of the stressed layer or an epitaxial layer.

25. (Cancelled)

26. (Cancelled)

27. (Previously Presented) A method of forming a structure that includes a relaxed or pseudo-relaxed layer on a substrate comprising:

growing an elastically stressed layer of semiconductor material on a donor substrate;

growing a semiconductor layer to a desired thickness on the elastically stressed layer;

forming a first glassy layer of a viscous material as part of the thickness of the semiconductor layer;

removing a portion of the donor substrate to form a structure that includes the first glassy layer, the stressed layer, the semiconductor layer and the portion of the donor substrate as a surface layer;

forming a second glassy layer of a viscous material as part of the thickness of the surface layer;

removing the second glassy layer to expose the surface layer that remains; and

growing a layer of semiconductor material on the surface layer to provide a stressed surface layer upon the structure.

28. (Previously Presented) The method of claim 27, wherein the substrate and semiconductor layer and semiconductor material each comprises Si and the stressed layer is $Si_{1-x}Ge_x$ where x is at least 0.1.

29. (New) The method of claim 1, which further comprises applying a smoothing treatment on the surface layer after the portion of the donor wafer substrate is removed.

30. (New) The method of claim 29, wherein the smoothing treatment comprises polishing the surface layer in order to obtain a thickness of between about 200 to about 800Å.

31. (New) The method of claim 30, which further comprises conducting a rapid thermal anneal prior to the polishing.

32. (New) The method of claim 29, wherein the smoothing comprises conducting a rapid thermal anneal.

33. (New) The method of claim 29, wherein the smoothing comprises oven annealing of the surface layer in an argon and hydrogen atmosphere.

34. (New) The method of claim 29, wherein the surface layer comprises silicon.